

8. An apparatus as set forth in claim 7, wherein the outlet means comprises blast pipes arrangeable above and below the metal strip.

REMARKS

Reconsideration of the subject application in view of the present amendment is respectfully requested.

By the present amendment, the specification has been amended to correct a formal error therein (a marked up copy of a respective paragraph is enclosed).

Claims 1-4 have been cancelled. Claims 5-8 have been added.

Based on the foregoing amendments and the following remarks, the application is deemed to be in condition for allowance, and action to that end is respectfully requested.

The Examiner rejected Claims 3 and 4 under 35 U.S.C. §102(b) as being anticipated by Yano, et al., U.S. Patent No. 4,319,930 (Yano). Claims 1-2 were rejected under 35 U.S.C. §103(a) as being unpatentable over Yano in view of Hodsden, U.S. Patent No. 3,938,214 (Hodsden).

It is respectfully submitted that claims 5-8 are patentable over Yano and Hodsden whether taken alone or in combination. Specifically, claim 5 recites the step of feeding the bypass stream to a washer unit located immediately upstream of

a respective washer unit for additionally rinsing the metal strip in the immediately upstream washer unit with a rinsing water containing a smaller concentration of foreign additives than a rinsing water with which the metal strip is first treated in the immediately upstream washer unit.

The foregoing novel feature of the present invention is not disclosed in Yano or Hodsden. With the state of the art, which is discussed in Yano with reference to Fig. 1, carrying of the treatment liquid from the first tank (1) to the second tank (2) and the following tanks (3, 4), during transportation of the treated goods (cans) on a belt (5), cannot be avoided. As a result, the rinsing liquid in the tanks (2-4) has a high concentration of the treatment medium that is carried from the first tank. The object of Yano (column 3, line 53 – column 4, line 52) to obtain as uniform concentration of the treatment medium as possible in all of the washing tanks (2-4). To this end, in Yano, the fresh water, which is fed by a pump (20) through the conduit (25) to the rear tank (4), is fed, in equal amounts to the preceding tanks (3, 2). This is achieved by associating the conduits (23, 24), which are connected with respective pumps (8, 9) with two nozzles (18, 41 and 19, 42, respectively), with one of the nozzles (18, 19, respectively) being associated with a respective tank (3, 4) and the other nozzle (41, 42) being associated with the preceding tank (2, 3, respectively). The nozzles (41,42) feed, respectively, the same amount of liquid to both preceding tanks (2, 3), insuring the same concentration.

Contrary to Yano, the object of the invention is not to obtain a uniform concentration in separate washer units. The object of the invention is to provide a bypass flow so that the strip or another treated product, which was rinsed in a washer unit n, is subjected to additional rinsing with less a less loaded rinsing water from a washer unit n+1 ... in the washer unit n.

Yano operates on a completely different principle.

Hodsden likewise does not disclose the novel features of the present invention.

A rejection based on 35 U.S.C. § 102, as in the present case, requires that the cited reference disclose each and every element covered by the claim. Electro Medical Systems S.A. v. Cooper Life Sciences Inc., 32 U.S.P.Q.2d 1017, 1019 (Fed Cir. 1994); Lewmar Marine Inc. v. Bariant Inc., 3 U.S.P.Q.2d 1766, 1767-68 (Fed Cir. 1987); Verdegaal Bros., Inc. v. Union Oil, Co., 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987). The Federal Circuit has mandated that 35 U.S.C. §102 requires no less than "complete anticipation...[a]nticipation requires the presence in a single prior art disclosure of all elements of a claimed invention arranged as in the claim." Connel v. Sears, Roebuck & Co., 220 U.S.P.Q. 193, 198 (Fed. Circ. 1983); See also, Electro Medical Systems, 32 U.S.P.Q. 2d at 1019; Verdegaal Bros., 2 U.S.P.Q.2d at 1053.

Since Yano and Hodsden fail to disclose each and every feature of independent Claim 5, they, as a matter of law, do not anticipate the present invention, as defined by said independent claim, or make it obvious.

In view of the above, it is respectfully submitted that Yano and Hodsden do not anticipate or make obvious the present invention as defined by claim 5, and the present invention is patentable over Yano and Hodsden.

Claim 6 depends on claim 5 and is allowable for the same reason claim 5 is allowable and further because of specific features recited therein which, when taken above and/or in combination with features recited in claim 5 are not disclosed or suggested in the prior art.

Claims 7-8 are directed to an apparatus for effecting the method of claims 5-6 and are allowable for the same reason claims 5-6 are allowable.

CONCLUSION

In view of the foregoing, it is respectfully submitted that the application is in condition for allowances of the application is respectfully requested.

Should the Examiner require or consider it advisable that the specification, claims and/or drawings be further amended or corrected in formal respects, in order to place in condition for final allowance, then it is respectfully requested that

such amendment or correction be carried out by Examiner's amendment and the case passed to issue. Alternatively, should the Examiner feel that a personal discussion might be helpful in advancing this case to allowance, the Examiner is invited to telephone the undersigned.

Respectfully Submitted,

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I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail and addressed to: Assistant Commissioner for Patents, Washington, DC 20231 on January 23, 2003.

Alexander Zinchuk

Version with marking showing changes made



Fig. 2 a schematic view, at an increased, in comparison with
Fig. 1, scale, of an inlet section of the cascade washer
following the strip treatment means.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

A counterflow cascade washer 1, which is arranged downstream of a treatment means 2, e.g., means for pickling a continuous metal strip 4 displaceable in a direction shown with arrow 3, includes a forewasher unit 5 and a plurality of washer units following the forewasher unit 5, namely, n , $n+1$, $n+2$, $n+3$. Fresh water is fed into the last washer unit or the washer unit $n+3$ via a conduit 6 from a fresh water units or ~~forewasher~~ ^{forewasher} unit 5, and washer units n , $n+1$, $n+2$, and $n+3$ are separated from each other by gates 7 (please see also Fig. 2). Each of the washer units n , $n+1$, $n+2$, $n+3$ is associated with a respective rinsing water circuit I-IV through which rinsing water is fed to respective washer units. The rinsing water is applied to the strip 4 through the nozzle arrangements 9 each including upper and lower blast pipes arranged above and below the running strip 4. Maintaining of the cascade flow in the counterflow direction, which is shown in Fig. 2 with arrows 8, is effected by branching of a bypass

stream from the respective rinsing water circuits I-IV and not by overflow over the gates 7. To this end, a separate bypass conduit 10 is integrated in each of the rinsing water circuit I through IV. Through a respective bypass conduit 10, a portion of the water stream is branch and is fed from a respective washer unit to an end of a washer unit which is located upstream of the feeding washer unit in the displacement direction 3 of the strip 4, e.g., a bypass stream portion is fed from the washer unit $n+1$ to the washer unit n . At the end of each bypass conduit 10, there is provided a nozzle arrangement 11 which includes upper and lower blast pipes 11a, 11b located above and below the strip 4 (please see Fig. 2 that shows a mirror image of the arrangement of the washer units shown in Fig. 1).

As a result of the provision of the bypassing stream portions, the strip 4 is subjected at each upstream washer unit to additional rinsing by a small amount of rinsing water fed from the downstream washer unit $n+1$, $n+2$, $n+3$. Thus, a minimal cascade flow, which is always necessary for the operation of the counterflow cascade washer and, thereby, a carry-over of chemicals and foreign residues from a downstream washer unit to the adjacent upstream washer unit are maintained without the overflow of the rinsing water over the gates 7.